

WE CLAIM:

1. A method for managing data communications between hosts of a switched Ethernet network, the method comprising:
 - 5 assigning hosts to logical groups of hosts such that the hosts participating in a data communication are assigned to the same group;
in a switch of the network, associating each said group with a service class indicative of requirements for forwarding data across the switch for data communications between hosts in the group, and forwarding received data across the switch in a manner dependent on the service
10 class of the group to which hosts participating in the data communication are assigned; and
in the switch, disabling data communications between hosts in one or more of said groups when required to satisfy the forwarding requirements for at least one said service class.
2. A method according to claim 1 wherein data communications are disabled for a said
15 group by discarding data received from any host in that group.
3. A method according to claim 1 wherein the step of assigning hosts to a logical group is performed by the switch.
- 20 4. A method according to claim 1 wherein the step of assigning hosts to a logical group comprises allocating a group identifier to hosts in that group.
5. A method according to claim 4 wherein each said logical group comprises a VLAN, and wherein the step of assigning hosts to a logical group comprises allocating a VLAN
25 identifier to hosts in that group
6. A method according to claim 4 wherein a said group is associated with a service class by storing data associating said identifier with that service class.
- 30 7. A method according to claim 4 including inserting the identifier allocated to a said group in data packets transmitted between hosts in that group.
8. A method according to claim 7 wherein, for at least one said group, the identifier is inserted in data packets by hosts in that group.

9. A method according to claim 7 wherein, for at least one said group, the identifier is inserted by the switch in data packets received from a host in that group.

5 10. A method according to claim 1 wherein a high-priority service class and a low-priority service class are defined in the switch, whereby forwarding of received data from hosts in groups associated with the high-priority service class takes precedence over forwarding of received data from hosts in groups associated with the low-priority service class.

10 11. A method according to claim 10 including, for at least one said group associated with the high-priority service class, calculating a transmission schedule in the switch indicating time periods for receiving data from hosts in the group such that the data received during said time periods will be forwarded by the switch in accordance with the high-priority service class, said schedule being calculated in dependence on the bandwidth required for data communications
15 between hosts in the group.

12. A method according to claim 11 including disabling data communications outside the scheduled time periods for the or each said group associated with the high-priority service class when required to satisfy the forwarding requirements of the high-priority service class.

1040001-150401 20 13. A method according to claim 11 including sending the transmission schedule calculated for a said group to the or each transmitting host in the group.

14. A method according to claim 10 wherein the low-priority service class is defined in the
25 switch for best-effort forwarding of received data.

15. A method according to claim 14 including assigning all hosts participating in best-effort data communications to one said group associated with the low-priority service class.

30 16. A method according to claim 1 wherein a plurality of different-priority service classes are defined in the switch, whereby forwarding of received data from hosts in groups associated with each of said different-priority service classes takes precedence over forwarding of received data from hosts in groups associated with any lower-priority service classes, the

method including disabling data communications for groups associated with one or more low-priority service classes when required to satisfy the forwarding requirements of or more higher-priority service classes.

- 5 17. A switch for connection in a switched Ethernet network, the switch comprising:
switching circuitry for forwarding across the switch of data received at a port of the switch;
memory for storing data indicative of an assignment of hosts in the network to logical groups of hosts, said assignment being such that the hosts participating in a data
10 communication are assigned to the same group; and
control logic for associating each said group with a service class indicative of requirements for forwarding data across the switch for data communications between hosts in the group, and for controlling forwarding of received data by the switching circuitry in a manner dependent on the service class of the group to which hosts participating in the data
15 communication are assigned;
wherein the control logic is configured to disable data communications between hosts in one or more of said groups when required to satisfy the forwarding requirements for at least one said service class.
- 20 18. A switched Ethernet network comprising:
at least one switch which comprises switching circuitry for forwarding across the switch of data received at a port of the switch, memory for storing data indicative of an assignment of hosts in the network to logical groups of hosts, said assignment being such that the hosts participating in a data communication are assigned to the same group, and control
25 logic for associating each said group with a service class indicative of requirements for forwarding data across the switch for data communications between hosts in the group, and for controlling forwarding of received data by the switching circuitry in a manner dependent on the service class of the group to which hosts participating in the data communication are assigned, wherein the control logic is configured to disable data communications between
30 hosts in one or more of said groups when required to satisfy the forwarding requirements for at least one said service class; and
a plurality of hosts connected to ports of said at least one switch.

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TOTAL

19. A computer program product comprising computer program code means executable by a processor of a switch for connection in a switched Ethernet network, wherein hosts of the network are assigned to logical groups of hosts such that the hosts participating in a data communication are assigned to the same group, to perform the steps of:

- 5 associating each said group with a service class indicative of requirements for forwarding data across the switch for data communications between hosts in the group, and controlling forwarding of received data across the switch in a manner dependent on the service class of the group to which hosts participating in the data communication are assigned; and
10 disabling data communications between hosts in one or more of said groups when required to satisfy the forwarding requirements for at least one said service class.

20. A computer program product comprising computer program code means executable by a processor of a switch for connection in a switched Ethernet network to perform the steps of:

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10 assigning hosts to logical groups of hosts such that the hosts participating in a data communication are assigned to the same group;
15 associating each said group with a service class indicative of requirements for forwarding data across the switch for data communications between hosts in the group, and controlling forwarding of received data across the switch in a manner dependent on the service class of the group to which hosts participating in the data communication are assigned; and
20 disabling data communications between hosts in one or more of said groups when required to satisfy the forwarding requirements for at least one said service class.